

Application No.: 09/755,437

CLAIM AMENDMENTS

Claims 1 through 7 (Cancelled).

8. (Currently amended) A chemical monolayer construction, said construction comprising:

- (a) a substrate having a contact surface, ~~wherein said contact surface is substantially devoid of dimers oriented in a substantially identical direction;~~ and
- (b) a monolayer of a plurality of substantially parallel molecular units attached to said contact surface of said substrate, wherein said molecular units are attached to said substrate through a conjugated bond.

9. (Original) A chemical monolayer construction according to claim 8 wherein said substrate comprises conductive carbon.

Claims 10 and 11 (Cancelled).

12. (Original) A chemical monolayer construction according to claim 8 wherein said molecular units have an average length, said contact surface of said substrate has a roughness value that is substantially less than or equal to said average length of said molecular units.

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13. (Currently amended) A chemical monolayer construction according to claim 8 wherein said substantially parallel molecular units ~~[[that]]~~ are of substantially the same length.

14. (Original) A chemical monolayer construction according to claim 8 wherein said substantially parallel molecular units comprise at least two types of molecular units of different lengths.

15. (Original) A chemical monolayer construction according to claim 8 wherein said roughness value is less than 200 Angstroms.

16. (Original) A chemical monolayer construction according to claim 8 wherein said roughness value is less than 20 Angstroms.

17. (Original) A chemical monolayer construction according to claim 8 wherein said roughness value is less than 5 Angstroms.

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18. (Original) A chemical monolayer construction according to claim 8 additionally comprising a source of electrical current supplied to said substrate so as to be conducted by said plurality of substantially parallel molecular units.

Claims 19 – 43 (Cancelled).

44. (Currently amended) A method of producing a chemical monolayer construction, said method comprising:

- (a) providing a substrate having a contact surface, ~~wherein said contact surface is substantially devoid of dimers oriented in a substantially identical direction;~~ and
- (b) reacting a chemical precursor bearing molecular units with said substrate so as to form a monolayer of a plurality of substantially parallel molecular units attached to said contact surface of said substrate, wherein said molecular units are attached to said substrate ~~so as to be strongly coupled electronically to said substrate~~ through a conjugated bond and wherein said molecular units have an average length, said contact surface of said substrate has a roughness value substantially less than or equal to said average length of said molecular units.

45. (Cancelled).

46. (Original) A method of producing a chemical monolayer construction according to claim 44 wherein said substrate comprises conductive carbon.

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47. (New) A chemical monolayer construction, said construction comprising:

- (a) a substrate consisting essentially of conductive carbon, said substrate having a contact surface; and
- (b) a monolayer of a plurality of substantially parallel molecular units attached to said contact surface of said substrate through a conjugated bond.

48. (New) The chemical monolayer construction according to claim 47, wherein said molecular units have an average length and said contact surface of said substrate has a roughness value that is substantially less than or equal to said average length of said molecular units.

49. (New) A chemical monolayer construction according to claim 47 wherein said substantially parallel molecular units are of substantially the same length.

50. (New) A chemical monolayer construction according to claim 47 wherein said substantially parallel molecular units comprise at least two types of molecular units of different lengths.

51. (New) A chemical monolayer construction according to claim 47 wherein said roughness value is less than 200 Angstroms.

52. (New) A chemical monolayer construction according to claim 47 wherein said roughness value is less than 20 Angstroms.

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53. (New) A chemical monolayer construction according to claim 47 wherein said roughness value is less than 5 Angstroms.

54. (New) A chemical monolayer construction according to claim 47 additionally comprising a source of electrical current supplied to said substrate so as to be conducted by said plurality of substantially parallel molecular units.